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Mr. Chairman, it is my pleasure to be here today to discuss the commercialization of space and the impact of commercial space on future jobs, new technologies and economic growth for the U.S. into the 21st century.

The economic significance of commercial space to this country's future cannot be underestimated. According to the Teal Group, the next ten years will see the development and launch of almost 1,700 satellites worldwide, with commercial satellites contributing over 70 percent of this total. It is estimated by SpaceVest that this demand will continue to fuel industry growth of at least 20 percent a year, adding as many as 70,000 new high-tech jobs worldwide each year and generating in excess of $100 billion in worldwide annual revenues by the year 2000.

However, beyond these numbers, it is useful to look at the significance of commercial space in a larger context.

The information revolution has changed the character of the products and services that will be of value in the future. Commercial space will be fundamental to our ability to create and distribute these products and services. A combination of land based telecommunications services, linked with space-based satellites will be capable of transporting information products from U.S. commercial remote sensing satellites, or space-based navigation and timing information from the GPS system to customers around the world and in the most remote areas. Commercial space will be fundamental

to how we do business in the future.

Space has become the platform from which many of the most exciting commercial information products will originate. This is true of telecommunications constellations such as Iridium and Globalstar. But it will also be true of a new generation of imagery products and imaginative commercial uses of the Department of Defense GPS satellite system.

As this committee works to help this country realize the full potential of what we started in space some 40 years ago, there are four points I would like to make to assist in its deliberations.

First, in space, our national security, foreign policy, and economic security are inexorably linked. We cannot neglect one without sacrificing the others. Nor should we treat them as competing. We will either rise together based on space policies that treat our commercial success in this new information area as a tool that strengthens us, or fall together based on policies that inhibit our commercial technology lead. Whatever road we take, we shall take it together.

Pursuant to the President's policy, the Administration is committed to pursuing a balanced approach that supports and enhances U.S. industrial competitiveness while protecting U.S. national security and foreign policy interests.

The historical changes that have blurred the lines between commercial and military space will continue to blur them in the future. This can be used to our advantage.

We must look at the commercial space sector with fresh eyes and in a way that reflects the new realities that are upon us. The Administration is already moving in this direction. With remote sensing, GPS and the development of new launch technologies,

we should continue to find new ways to recognize the inexorable and beneficial coincidence of interests that exists among the military, civil and commercial sectors.

The second point is that information products and services will continue to emerge as significant industries. Moreover, space will play a key role in their development. Many of the new, exciting and potentially lucrative businesses that are emerging are information based.

An example is the merging of telecommunications with remote sensing and GPS technologies to produce new information products. A recent article in the *New York Times* described plans to put GPS location devices in cell phones to allow network operators to know the device location when it is in use. The ability to combine the transfer of information through communications devices, with the ability to know where that communication originates and to image that location on the surface of the earth is a very powerful tool for search and rescue workers, flood and forest fire management, disaster mitigation, environmental monitoring, fleet management, crop assessments, precision farming and many other applications. It is not an exaggeration to say that there will be products and services resulting from these commercial space technologies that we have yet to imagine.

Therefore, our understanding of the changing character of information products in the 21st century—how they are distributed, what gives them value, what are their sources—will be critical if we are going to stay ahead of the game and, more importantly, exploit that information to our own advantage.

My third point is that the international aspects of space are real and growing. It always has been the case that the geometry of operating off the planet gave one a perspective one would not otherwise have. By its nature, space makes one think in international and transnational terms.

However, the growing commercial market for space-based services gives companies a tremendous incentive to seek out markets and partners across the globe. It is not just spreading the cost of the hardware, or entering new markets that drives this democratization of space. It is also the fact that with the end of the Cold War, meaningful technology cooperation has been accelerated.

Just as the traditional lines between military, civil and commercial space are blurring, the growing international nature of space is also blurring lines between traditional national systems. It is increasingly more difficult to determine whether a SeaLaunch or a Globalstar is a U.S. system or something entirely new. And this trend will accelerate. The question of who is "us" will become a very relevant one, and has policy implications for purposes of regulation, licensing and trade. From a government policy perspective, we may need to rethink what it means to say something is "ours" vs. "theirs," and whether we now require a new model for framing these issues.

My fourth and final point is that the stakes involved in this emerging market are huge. What is at stake is nothing less than global U.S. leadership of information technologies in the 21st century. Commercial space is the next economic frontier. We have extreme challenges, and we are breaking new ground. However, this a historic opportunity to think creatively about how we can impact a major sector of the U.S. economy, and a new generation of workers and entrepreneurs coming of age in the next century.

This area has the potential to create high wage, high skill jobs while creating commercial products we can only dream of. If we make the right decisions now, the future looks bright, and we will have created a future for our children and grand children that we can all be proud of.

If we meet the challenges ahead of us and continue to push forward, we will be remembered for having navigated a course that put us on a trajectory of security and

prosperity well into the next century. If we focus on the goal of U.S. information technology leadership, I believe we will have created a future that we will be proud to look back on and say we played a part.

Mr. Chairman, we at the Commerce Department look forward to working with you on this very important issue of commercial space. Thank you and I welcome the chance to answer any questions you might have.